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Mucin 7 siRNA (h): sc-43167

BACKGROUND

Mucin glycoproteins are major constituents of the glycocalyx that covers mucosal epithelium. There are two broad classes of mucins: membrane-associated and secretory mucins. The Mucin 7 gene encodes a low-molecular-mass salivary mucin, Mucin 7 (also designated MG2, mucin glycoprotein 2), that lacks cysteine-rich domains and is secreted as a soluble monomer. The Mucin 7 glycoprotein can bind to a variety of microbes and this binding requires a cysteine-containing domain in the N-terminal region of Mucin 7. Mucin 7 is expressed in human submandibular/sublingula secretions and in mucous acinar cells. Among all normal malignant tissue samples and tumor cell lines, Mucin 7 is only expressed in bladder cancer cell lines and samples of invasive transitional cell carcinomas, suggesting differential Mucin 7 gene expression with the onset of malignant transformation of the bladder urothelium. Mucin 7 is also expressed in a variety of epithelial cancers. Expression of Mucin 7 is retinoic acid (RA)- or retinol-dependent and is mediated by the retinoid acid receptors RAR α and, to a lesser extent, by RAR γ . Thyroid hormone T3 binds to thyroid receptors and interacts with RA to inhibit mucin gene expression.

REFERENCES

- Bobek, L.A., et al. 1993. Molecular cloning, sequence and specificity of expression of the gene encoding the low molecular weight human salivary mucin (Muc 7). *J. Biol. Chem.* 268: 20563-20569.
- Khan, S.H., et al. 1998. *In situ* hybridization localized Mucin 7 mucin gene expression to the mucous acinar cells of human and Mucin 7-transgenic mouse salivary glands. *Glycoconj. J.* 15: 1125-1132.
- Bobek, L.A., et al. 1998. Tissue-specific expression of human salivary mucin gene, Mucin 7, in transgenic mice. *Transgenic Res.* 7: 195-204.
- Retz, M., et al. 1998. Differential mucin Muc 7 gene expression in invasive bladder carcinoma in contrast to uniform Muc 1 and Muc 2 gene expression in both normal urothelium and bladder carcinoma. *Cancer Res.* 58: 5662-5666.
- Zhang, S., et al. 1998. Selection of tumor antigens as targets for immune attack using immunohistochemistry: protein antigens. *Clin. Cancer Res.* 4: 2669-2676.

CHROMOSOMAL LOCATION

Genetic locus: MUC7 (human) mapping to 4q13.3.

PRODUCT

Mucin 7 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Mucin 7 shRNA Plasmid (h): sc-43167-SH and Mucin 7 shRNA (h) Lentiviral Particles: sc-43167-V as alternate gene silencing products.

For independent verification of Mucin 7 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43167A, sc-43167B and sc-43167C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Mucin 7 siRNA (h) is recommended for the inhibition of Mucin 7 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Mucin 7 (1C10): sc-517138 is recommended as a control antibody for monitoring of Mucin 7 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Mucin 7 gene expression knockdown using RT-PCR Primer: Mucin 7 (h)-PR: sc-43167-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.